Seasonal Flight Patterns of Hemiptera in a North Carolina Black Walnut Plantation. 4. Cimicoidea

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SEASONAL FLIGHT PATTERNS OF HEMIPTERA IN A NORTH CAROLINA BLACK WALNUT PLANTATION. 4. CIMICOIDEA

J. E. McPherson¹ and B. C. Weber²

ABSTRACT

The seasonal flight patterns of 12 species of Cimicoidea collected in window traps in a North Carolina black walnut plantation are described. Flying height distributions and seasonal flight activities of *Nabis americoferus*, *N. roseipennis* and *Orius insidiosus* are considered in detail.

RESULTS AND DISCUSSION

Twelve cimicoid species were collected during the two years of this study including six nabids and six anthocorids; numbers of specimens for these species ranged from 1 to 5187 (Table 1).

Most taxa were collected in numbers too low to permit conclusions about seasonal flight patterns. However, *Nabis americoferus*, *N. roseipennis* and *Orius insidiosus* were collected in sufficient numbers (Table 1) to permit a more detailed discussion of flying height distributions and seasonal flight activities.

*N. americoferus* occurs on grasses and weeds (Blatchley 1926) and feeds on aphids, leafhoppers, and caterpillars (Harris 1928). It overwinters as adults (Harris 1928). Stoner et al. (1975) felt that it probably has five generations per year in Arizona.

*N. roseipennis* usually occurs in tall grasses and weeds but can be found in dense upland woods (Blatchley 1926); it feeds on insects inhabiting grassy and herbaceous vegetation (Blatchley 1926). It overwinters as adults, and is apparently univoltine, in the Cranberry Lake region of New York (Mundinger 1922).

In the present study, *N. americoferus* adults were found from late March to mid-October and *N. roseipennis*, from early April to early October (Table 1). Both species were collected...
Table 1. Seasonal flight activity of Cimicoidea during 1977–78 in a North Carolina black walnut plantation.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>No. Collected</th>
<th>Collection Height (m)</th>
<th>Range of Collection Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NABIDAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hoplistoscelis sordidus</em> (Reuter)</td>
<td>1</td>
<td>4.00  ± SE</td>
<td>7 April</td>
</tr>
<tr>
<td><em>Lasiomerus annulatus</em> (Reuter)</td>
<td>1</td>
<td>7.00  ± SE</td>
<td>22 July</td>
</tr>
<tr>
<td><em>Nabis americofus</em> Carayon</td>
<td>58</td>
<td>2.48±0.24  ± SE</td>
<td>1-7 31 March–13 Oct.</td>
</tr>
<tr>
<td><em>Nabis capsiformis</em> Germar</td>
<td>14</td>
<td>4.29±0.61  ± SE</td>
<td>1-7 7 July–29 Sept.</td>
</tr>
<tr>
<td><em>Nabis roseipennis</em> Reuter</td>
<td>123</td>
<td>3.07±0.16  ± SE</td>
<td>1-7 1 April–6 Oct.</td>
</tr>
<tr>
<td><em>Pagasa fusca</em> (Stein)</td>
<td>2</td>
<td>2.00±1.00  ± SE</td>
<td>1-3 22 July–4 Aug.</td>
</tr>
<tr>
<td><strong>ANTHOCORIDAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Anthocoris</em> sp.</td>
<td>2</td>
<td>4.00±3.00  ± SE</td>
<td>1-7 6 May–29 Sept.</td>
</tr>
<tr>
<td><em>Calliodis temnostethoides</em> (Reuter)</td>
<td>21</td>
<td>5.24±0.21  ± SE</td>
<td>3-6 10 June–6 Oct.</td>
</tr>
<tr>
<td><em>Lasiochilus fusculus</em> (Reuter)</td>
<td>2</td>
<td>5.50±1.50  ± SE</td>
<td>4-7 25 Aug–8 Sept.</td>
</tr>
<tr>
<td><em>Lytocoris campestris</em> (Fabricius)</td>
<td>1</td>
<td>7.00  ± SE</td>
<td>18 Aug.</td>
</tr>
<tr>
<td><em>Lytocoris stalii</em> (Reuter)</td>
<td>1</td>
<td>6.00  ± SE</td>
<td>30 June</td>
</tr>
<tr>
<td><em>Orius insidiosus</em> (Say)</td>
<td>5,187</td>
<td>3.45±0.74  ± SE</td>
<td>1-7 31 March–13 Oct.</td>
</tr>
</tbody>
</table>

at all seven flying heights (Figs. 1–2); however, a comparison of the flying height distributions of these species with the \( \chi^2 \) test for two independent samples showed that there was a significant difference at the 0.01 level (i.e., most adults of *A. americofus* flew at a lower height than those of *A. roseipennis*).  

Both nabid species apparently overwintered as adults and were bivoltine. Overwintered adults began to emerge during late March to early April and gave rise to a summer generation which was present from about June through August and peaked in early to mid-July (Figs. 4–5). This generation gave rise to the overwintering generation which was present from September to October. Additional generations may be indicated by the smaller peaks during the season (e.g., early to mid-August) but these peaks are of such short duration that they probably resulted from random variation or were a response to some environmental factor (e.g., temperature).

*O. insidiosus* is a common species which feeds on both insects and plants (e.g., Barber 1936, Dicke and Jarvis 1962, Marshall 1930) and is often found on corn (e.g., Barber 1936, Dicke and Jarvis 1962, Garman and Jewett 1914, Phillips and Barber 1933). Barber (1936) studied its seasonal abundance on corn in Virginia where it occurred from the third or fourth week in June to as late as early November and reached maximum populations during the first or second week in August. He felt that it usually has two or three generations per year on this plant. Marshall (1930) stated that, in Kansas, it overwinters only as adults.

In the present study, *O. insidiosus* adults were found from late March to mid-October (Table 1). They flew at all seven heights but were most frequently collected at 1-3 m (Fig. 3).

This species apparently overwintered as adults and was bivoltine (Fig. 6). Overwintered adults began to emerge in late March and apparently gave rise to a summer generation that was present from about mid-June to late August and peaked in late June to early July; the month difference between this peak and that reported by Barber (1936) may simply reflect the more southern location of the present study. This generation gave rise to the overwintering generation that was present from September to October.

\[ \chi^2 = 10.78 \]

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3Data were grouped in the following categories for testing: 1-2, 3-4 and 5-7 m; \( \chi^2 = 10.78 \).
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ACKNOWLEDGMENTS

We wish to thank Dr. R. C. Froeschner, National Museum of Natural History, Washington, D. C., for confirming our identifications of these cimicoids. We also wish to acknowledge Mr. D. Brenneman and the staff of the North Carolina Division of Forestry, Morganton, for their help in collecting data and maintaining the window traps. This research was partially supported by the USDA Forest Service, North Central Forest Experiment Station.

LITERATURE CITED


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